

## Larva of the Wood-boring Sawfly

### *Syntexis libocedrii* Rohwer

(Hymenoptera: Syntexidae)

WOODROW W. MIDDLEKAUFF

*Department of Entomological Sciences  
University of California, Berkeley, 94720*

Through the kindness of Mr. Richard L. Wescott, of the Oregon Department of Agriculture, I received a shipment of larvae of *Syntexis libocedrii* Rohwer, the incense cedar woodwasp, which he collected in 1970. *S. libocedrii* is the only known representative of the unique family Syntexidae, the larval stage of which has not previously been figured and described.

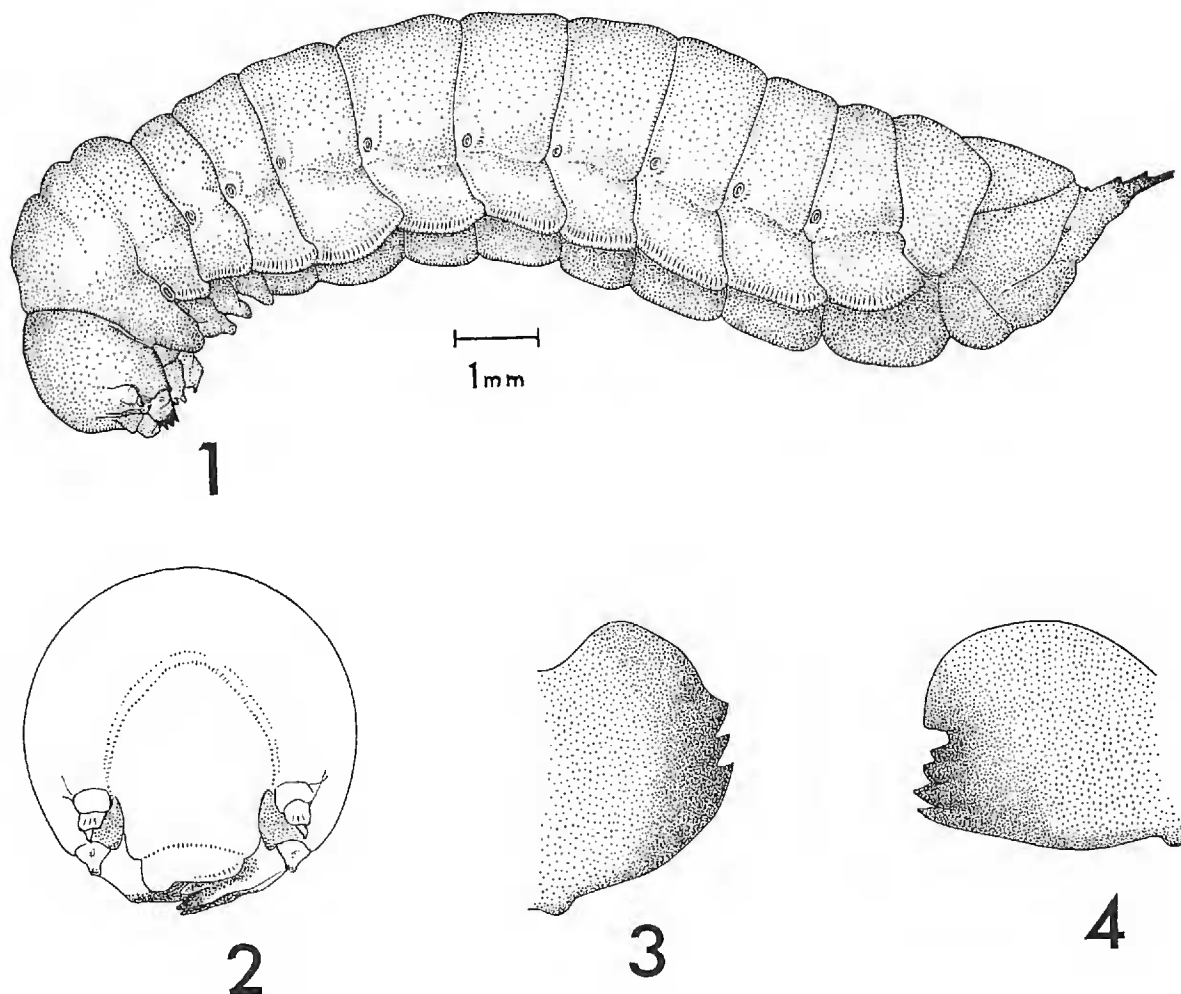
Adults of this wood-boring sawfly were rare in collections until 1963 when Wickman (Middlekauff, 1965) discovered numerous adults hovering near and ovipositing in the trunks of *Libocedrus*, 1 day following a forest fire in northern California. The tree trunks were still warm and smoking at the time the collections were made. This appears to be a characteristic behavior pattern and helps explain the paucity of specimens in collections.

With this information on their biology available, additional specimens were readily taken by Wickman and others in California and subsequently by Wescott in Oregon.

Biological notes were published by Wickman (1964) and Wescott (1961).

For over 50 years it has been assumed that the incense cedar, *Libocedrus decurrens* Torr., is the sole host of *Syntexis*; however, Wescott (1971) reared specimens from naturally infested western juniper, *Juniperus occidentalis* Hooker, and in addition found females ovipositing in western red cedar, *Thuja plicata* Donn.

Based upon morphological details of adults as well as larvae, various specialists have recognized the close relationships between the wood boring sawflies in the families Syntexidae, Xiphydriidae and Siricidae. Benson (1935) in a conclusion with which I concur, rejects Rohwer's (1915) statement that *Syntexis* "should be placed in the Cephidae and that the cephids are the progenitors of the Xiphydriidae." Benson (*ibid.*) points out a number of adult characteristics which show a close affinity between the Xiphydriidae and Syntexidae and concludes that the evidence does not warrant Rohwer's position in regards to there being a



FIGS. 1-4. *Syntexis libocedrii* Roh., mature larva. Fig. 1. Lateral view. Fig. 2. Head, frontal view. Fig. 3. Right mandible, outer face. Fig. 4. Left mandible, outer face.

close relationship between syntexids and cephids. Benson stated that "the Cephidae, as we know them, are a highly specialized and clearly defined group, in some respects specialized in directions distinct from those of the Xiphydriidae or any other Hymenoptera. For these various reasons it seems to me that *Syntexis* cannot be regarded as a cephid, and is far better placed in a new family Syntexidae, related to the Xiphydriidae, and is probably derived from the same stock as that family."

The larvae, as would be expected, show affinities to both the Siricidae and Xiphydriidae. The functional metathoracic spiracles and configuration of the postcornus of mature larvae are more similar to those of siricids than xiphydriids. On the other hand the indistinct coronal suture, configuration of the postcornus of immature syntexid larvae, and the segmented antennal segments are features in common with the Xiphydriidae.

*Larva*.—Mature larva small in comparison to siricid larva. Preserved specimens 12–15 mm long, shallowly S-shaped (Fig. 1). Body creamy-white, no markings, glabrous. Head (Fig. 2) 1.6–2.4 mm wide, hypognathous, subglobose, with sparse, minute setae in no fixed pattern. Coronal and frontal sutures apparently obsolete, invisible with a stereoscopic microscope, indistinct with a compound light microscope. Vertical furrows not visible. Ocelli absent, in dried specimens a faint, brown-pigmented spot may be present. Antennae 3-segmented (Fig. 2), labial palpus with 2 segments, the maxillary with 3. Right mandible with 3 teeth (Fig. 3), the left with 4 (Fig. 4).

Thorax distinctly swollen. Prothorax may cover back portion of head. Thoracic legs fleshy, mamma-like, without claws, a few minute setae. Larvapods absent. Mesothoracic spiracles large, functional. Metathoracic spiracles conspicuous, functional, as large as those on the first eight abdominal segments. Cuticle on dorsum smooth, on venter microscopically, sharply and densely spinulate. Tenth abdominal tergum distinctly depressed by a median furrow. No evidence of hypopleural organs on abdominal segments I and II as reported in the siricids. Ultimate segment with distinct, heavily sclerotized, notched postcornus (Fig. 1) with dorsally directed teeth in mature larvae, ventrally in immature ones. No subanal appendage.

KEY TO FAMILIES OF NEARCTIC WOOD- AND STEM-BORING  
SYMPHYTA POSSESSING A POSTCORNUS  
(Mature Larvae)

1. Small subanal appendage which may be segmented, present; eye spot pigmented; antennae with 4–5 segments ..... Cephidae  
Subanal appendage absent; eye spot not pigmented, absent; antennae usually with fewer than 4 segments ..... 2
2. Metathoracic spiracle vestigial, much smaller than the abdominal one; teeth of postcornus ventral; labrum not conspicuously asymmetrical ..... Xiphydriidae  
Metathoracic spiracle conspicuous, as large or larger than the abdominal ones; teeth of postcornus dorsal; labrum with a pronounced dextral asymmetry ..... 3
3. Size large, over 20 mm., frontal and coronal sutures distinctly present; antenna with 1 segment ..... Siricidae  
Size small, 14–16 mm., frontal and coronal sutures indistinct, appear to be absent; antenna with 3 segments ..... Syntexidae

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